

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**



UNITED STATES PATENT AND TRADEMARK OFFICE

205
UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|-----------------------|-----------------------|------------------|
| 10/623,347 | 07/18/2003 | Richard Daniel Colvin | 2376.0017 | 5026 |
| 7590 | 06/25/2004 | | EXAMINER | |
| Finnegan, Henderson, Farabow, Garrett & Dunner, L.L.P. 1300 I Street, N.W. Washington, DC 20005-3315 | | | THANGAVELU, KANDASAMY | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2123 | |

DATE MAILED: 06/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 10/623,347 | COLVIN ET AL. |
| | Examiner | Art Unit |
| | Kandasamy Thangavelu | 2123 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 18 July 2003.

2a) This action is **FINAL**. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-18 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-18 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 18 July 2003 is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) Notice of Informal Patent Application (PTO-152)
6) Other: _____.

DETAILED ACTION

1. Claims 1-18 of the application have been examined.

Drawings

2. The drawings submitted on 18 July 2003 are accepted.

Specification

3. The disclosure is objected to because of the following informalities:

In Page 4, Para 010, "a maximum target limit ... and target values associated with additional platform locations". It is not clear what the applicants meant by the maximum target limit and target values. Is the maximum target limit a count of targets or the distance of target location from the platform? It is also not clear whether the applicants meant the targets for location of platforms or targets for location of oil wells. What are target values and what properties they depend on?

In Page 4, Para 011, "The step-out distance may be reduce by a predetermined amount" appears to be incorrect and it appears that it should be "The step-out distance may be reduced by a predetermined amount"

Page 9, Para 032 states, "using the methodology of an automatic target selection method described in U.S. Patent Application No. _____, filed on _____ ... automatic

target selection method of U.S. Patent Application No. _____. The missing U.S. Patent Application No. and date should be provided.

In Page 10, Para 034, "To determined whether the platform location is valid" appears to be incorrect and it appears that it should be, "To determine whether the platform location is valid".

In Page 11, Para 038, "The count reachable targets sub-method may also take into account the value associated with the targets associated with each platform in determining the best set of possible platforms". It is not clear what the applicants meant by the values and what properties they relate to. It is also not clear whether the applicants meant the targets for location of platforms or targets for location of oil wells.

Page 15, Para 048 states, "the automatic target selection method described in U.S. Patent Application No. _____, ... automatic target selection method of U.S. Patent Application No. _____. The missing U.S. Patent Application No. should be provided.

Page 17, Para 055 states, "the automatic target selection method disclosed in U.S. Patent Application No. _____. The missing U.S. Patent Application No. should be provided.

In Page 18, Para 059, "Method 1200 may also take into account the value associated with the targets assigned to each platform in determining the best set of possible platforms". It is not clear what the applicants meant by the values and what properties they relate to. It is also not clear whether the applicants meant the targets for location of platforms or targets for location of oil wells.

In Page 18, Para 060, "the maximum target limit ... and the target values". It is not clear what the applicants meant by the maximum target limit and target values. Is the maximum target limit a count of targets or the distance of target location from the platform? It is also not clear whether the applicants meant the targets for location of platforms or targets for location of oil wells. What are target values and what properties they depend on?

Page 19, Para 060 refers to "higher cumulative value". Higher cumulative value of what?

In Page 19, Para 062, "and performs all the stages describe above" appears to be incorrect and it appears that it should be, "and performs all the stages described above".

Appropriate corrections are required.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 3-6, 9-12 and 15-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3, 4, 9, 10, 15 and 16 refer to “a maximum target limit” which is vague and indefinite. What is the maximum target limit claimed? What is a target? Is it a target for locating a platform or a target for locating a well? Is the maximum limit determined in terms of number of platforms, number of wells, maximum distance of the platforms from some reference point or maximum distance of the target for location of wells from some reference point?

Claims 3, 9 and 15 refer to “one or more target values” which is vague and indefinite. What are the target values claimed? What is a target? Is it a target for locating a platform or a target for locating a well? What are the values associated with the targets?

Claims 5, 11 and 17 refer to “if a new location is better than an original location” which is vague and indefinite. How is it determined that the new location is better than the original location? What is the performance measure used to make this determination?

Claims rejected but not specifically addressed are rejected based on their dependency on rejected claims.

Claim Interpretations

6. In Claims 3, 4, 9, 10, 15 and 16 the term “a maximum target limit”, is interpreted as the maximum number of targets for locating wells.

In Claims 3, 4, 9, 10, 15 and 16 the term “one or more target values”, are interpreted as the values indicating the amount of presence of hydrocarbons at the targets for locating the wells.

In Claims 5, 11 and 17, it is assumed that “a new location is better than an original location” if a value indicating the total amount of hydrocarbons that can be accessed from the new location is higher than the total amount of hydrocarbons that can be accessed from the original location.

Claim Rejections - 35 USC § 101

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 7-12 are rejected under 35 U.S.C. 101 because they claim “a computer readable medium having computer executable instructions for performing stages comprising:”, which is non-statutory subject matter. The computer program in a computer readable medium is not patentable.

The claims may be patentable if claimed as “a computer readable medium having computer executable instructions which when executed on a computer perform the stages comprising:”.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 1-4, 7-10 and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Cullick et al.** (U.S. Patent 6,549,879) in view of **Tubel et al.** (U.S. Patent 6,006,832), and further in view of **Brunet** (U.S. Patent 6,315,054).

10.1 **Cullick et al.** teaches determining optimal well locations from a 3D reservoir model. Specifically, as per claim 13, **Cullick et al.** teaches computer system, comprising a user interface, memory storage means, and a processor coupled to the user interface and the memory storage means (CL6, L30-32; CL7, L54-56).

Cullick et al. does not expressly teach the processor operable to select a set of platform locations and determine additional platform locations to add to the set of platform locations. **Brunet** teaches the processor operable to select a set of platform locations and determine additional platform locations to add to the set of platform locations (CL2, L19-20), as that allows

reducing the number of platforms resulting in reduced investment and lower operating costs (CL2, L19-20). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the computer system of **Cullick et al.** with the computer system of **Brunet** that included the processor operable to select a set of platform locations and determine additional platform locations to add to the set of platform locations. The artisan would have been motivated because that would allow reducing the number of platforms resulting in reduced investment and lower operating costs.

Further, as per claim 13, **Cullick et al.** teaches determining an optimum location for each well location in the set of well locations (CL1, L20-22; CL1, L35-40; CL1, L29-32; CL2, L36-44; CL8, L48-50; CL12, L46-49). **Cullick et al.** does not expressly teach the processor operable to determining an optimum location for each platform location in the set of platform locations. **Tubel et al.** teaches that each platform has associated therewith a plurality of wells which extend from each platform through water to the surface of the ocean floor (CL5, L64-66), because as per **Brunet** that allows reducing the number of platforms resulting in reduced investment and lower operating costs (CL2, L19-20). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the computer system of **Cullick et al.** with the computer system of **Tubel et al.** that included each platform having associated therewith a plurality of wells which extend from each platform through water to the surface of the ocean floor. The artisan would have been motivated because that would allow reducing the number of platforms resulting in reduced investment and lower operating costs.

Brunet teaches the processor operable to determining an optimum location for each platform location in the set of platform locations (CL2, L19-20), as that allows reducing the

number of platforms resulting in reduced investment and lower operating costs (CL2, L19-20). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the computer system of **Cullick et al.** with the computer system of **Brunet** that included the processor operable to determining an optimum location for each platform location in the set of platform locations. The artisan would have been motivated because that would allow reducing the number of platforms resulting in reduced investment and lower operating costs.

10.2 As per claim 14, **Cullick et al.**, **Brunet** and **Tubel et al.** teach the computer system of claim 13. **Cullick et al.** teaches the processor determines the additional well locations by validating the additional well locations (CL5, L40-45; CL6, L32-36). **Cullick et al.** does not expressly teach that the processor determines the additional platform locations by validating the additional platform locations. **Brunet** teaches the processor operable to determining an optimum location for each platform location in the set of platform locations (CL2, L19-20), as that allows reducing the number of platforms resulting in reduced investment and lower operating costs (CL2, L19-20). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the computer system of **Cullick et al.** that included the processor determining the additional well locations by validating the additional well locations with the computer system of **Brunet** that included the processor operable to determining an optimum location for each platform location in the set of platform locations. The artisan would have been motivated because that would allow reducing the number of platforms resulting in reduced investment and lower operating costs.

10.3 As per claim 15, **Cullick et al.**, **Brunet** and **Tubel et al.** teach the computer system of claim 13. **Cullick et al.** teaches the processor determines the additional target locations to add to the set of target locations by adding the additional target locations to the set and determining whether the additional target locations are desirable, based on at least one of a maximum target limit (CL12, L62-63), a drilling distance (CL1, L29-32; CL13, L61-62), and one or more target values (CL4, L3-11) associated with the additional platform locations. **Cullick et al.** does not expressly teach the processor determines the additional platform locations to add to the set of platform locations by adding the additional platform locations to the set and determining whether the additional platform locations are desirable, based on at least one of a maximum target limit, a drilling distance, and one or more target values associated with the additional platform locations. **Brunet** teaches the processor determines the additional platform locations to add to the set of platform locations by adding the additional platform locations to the set and determining whether the additional platform locations are desirable, based on reducing the number of platforms (CL2, L19-20), as that allows reducing the number of platforms resulting in reduced investment and lower operating costs (CL2, L19-20). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the computer system of **Cullick et al.** that included the processor determining the additional target locations to add to the set of target locations by adding the additional target locations to the set and determining whether the additional target locations are desirable, based on at least one of a maximum target limit, a drilling distance, and one or more target values associated with the additional platform locations with the computer system of **Brunet** that included the processor determining the additional

platform locations to add to the set of platform locations by adding the additional platform locations to the set and determining whether the additional platform locations are desirable, based on reducing the number of platforms. The artisan would have been motivated because that would allow reducing the number of platforms resulting in reduced investment and lower operating costs.

10.4 As per claim 16, **Cullick et al.**, **Brunet** and **Tubel et al.** teach the computer system of claim 13. **Cullick et al.** teaches the processor determining the additional target locations to add to the set by applying at least one multiplier to approximate an average number of targets to assign to each of the well locations, and determining a maximum target limit for each of the additional well locations (CL12, L62-63).

Cullick et al. does not expressly teach the processor determining the additional platform locations to add to the set by applying at least one multiplier to approximate an average number of targets to assign to each of the additional platform locations, and determining a maximum target limit for each of the additional platform locations. **Brunet** teaches the processor determining the additional platform locations to add to the set, and determining a maximum limit for the additional platform locations (CL2, L19-20), as that allows reducing the number of platforms resulting in reduced investment and lower operating costs (CL2, L19-20). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the computer system of **Cullick et al.** that included the processor determining the additional target locations to add to the set by applying at least one multiplier to approximate an average number of targets to assign to each of the well locations, and determining a maximum

target limit for each of the additional well locations with the computer system of **Brunet** that included the processor determining the additional platform locations to add to the set, and determining a maximum limit for the additional platform locations. The artisan would have been motivated because that would allow reducing the number of platforms resulting in reduced investment and lower operating costs.

Cullick et al. does not expressly teach the processor receiving a user-supplied number of slots for each of the additional platform locations. **Tubel et al.** teaches the processor receiving a user-supplied number of slots for each of the additional platform locations (CL5, L64-66), because as per **Brunet** that allows reducing the number of platforms resulting in reduced investment and lower operating costs (CL2, L19-20). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the computer system of **Cullick et al.** with the computer system of **Tubel et al.** that included the processor receiving a user-supplied number of slots for each of the additional platform locations. The artisan would have been motivated because that would allow reducing the number of platforms resulting in reduced investment and lower operating costs.

10.5 As per Claims 1-4 and 7-10, these are rejected based on the same reasoning as Claims 13-16, supra. Claims 1-4 and 7-10 are method and computer readable medium claims reciting the same limitations as Claims 13-16 as taught throughout by **Cullick et al.**, **Brunet** and **Tubel et al.**

11. Claims 5-6, 11-12 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Cullick et al.** (U.S. Patent 6,549,879) in view of **Tubel et al.** (U.S. Patent 6,006,832), and further in view of **Brunet** (U.S. Patent 6,315,054) and **Lo et al.** (U.S. Patent 5,757,663).

11.1 As per claim 17, **Cullick et al.**, **Brunet** and **Tubel et al.** teach the computer system of claim 13. **Cullick et al.** teaches setting a step-out distance equal to a fraction of a platform reach (CL2, L36-44); and moving each of the additional target locations, and if a new location is better than an original location, moving each of the additional target locations to a new location (CL1, L20-22; CL1, L35-40; CL1, L29-32; CL2, L36-44; CL8, L48-50; CL12, L46-49).

Cullick et al. does not expressly teach moving each of the additional platform locations, and if a new location is better than an original location, moving each of the additional platform locations to a new location. **Brunet** teaches moving each of the additional platform locations, and if a new location is better than an original location, moving each of the additional platform locations to a new location (CL2, L19-20), as that allows reducing the number of platforms resulting in reduced investment and lower operating costs (CL2, L19-20). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the computer system of **Cullick et al.** with the computer system of **Brunet** that included moving each of the additional platform locations, and if a new location is better than an original location, moving each of the additional platform locations to a new location. The artisan would have been motivated because that would allow reducing the number of platforms resulting in reduced investment and lower operating costs.

Cullick et al. does not expressly teach (b) moving each of the additional platform locations in the set in eight compass directions;

(c) executing step (b) until new locations for each of the additional platform locations are no longer achieved; and

(d) executing steps (a) through (c) progressively decreasing the step-out distance until a more desirable set of platform locations are no longer achieved.

Lo et al. teaches (b) moving each of the additional platform locations in the set in eight compass directions;

(c) executing step (b) until new locations for each of the additional platform locations are no longer achieved; and

(d) executing steps (a) through (c) progressively decreasing the step-out distance until a more desirable set of platform locations are no longer achieved (Fig 6, Fig 8; CL1, L8-13; CL1, L45-50; CL1, L54 to CL2, L10), as that allows reducing the number of platforms resulting in reduced investment and lower operating costs (CL2, L19-20). It would have been obvious to one of ordinary skill in the art at the time of Applicants' invention to modify the computer system of **Cullick et al.** with the computer system of **Lo et al.** that included (b) moving each of the additional platform locations in the set in eight compass directions;

(c) executing step (b) until new locations for each of the additional platform locations are no longer achieved; and

(d) executing steps (a) through (c) progressively decreasing the step-out distance until a more desirable set of platform locations are no longer achieved. The artisan would have been

motivated because that would allow reducing the number of platforms resulting in reduced investment and lower operating costs.

Per claim 18: **Cullick et al.** teaches the processor reduces the step-out distance by a predetermined amount for each execution of Step (d) (Cl2, L36-44).

11.2 As per Claims 5-6 and 11-12, these are rejected based on the same reasoning as Claims 17-18, supra. Claims 5-6 and 11-12 are method and computer readable medium claims reciting the same limitations as Claims 17-18, as taught throughout by **Cullick et al., Brunet, Tubel et al. and Lo et al.**

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Kandasamy Thangavelu whose telephone number is 703-305-0043. The examiner can normally be reached on Monday through Friday from 8:00 AM to 5:30 PM.

If attempts to reach examiner by telephone are unsuccessful, the examiner's supervisor, Kevin Teska, can be reached on (703) 305-9704. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-9600.

K. Thangavelu
Art Unit 2123
June 19, 2004



KEVIN J. TESKA
SUPERVISORY
PATENT EXAMINER